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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

PATEL, GAUTAM

ART UNIT PAPER NUMBER

2655

DATE MAILED: 05/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/801,343

Applicant(s)

YUKAWA, HIROAKI

Examiner

Gautam R. Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,9,10 and 17-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,9,10 and 17-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment:

1. This is in response to amendment filed on 12-22-04.
2. Claims 1-2, 9-10, and 17-29 remain for examination.

Claim Rejections - 35 U.S.C. § 103

3. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 9-10 and 17-18, 20-21, 23-24, 26-27 and 29 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Uchizaki et al., US. patent 6,646,975 (hereafter Uchizaki).

As to claim 1, Uchizaki discloses the invention as claimed [see Figs. 1-8 especially 1, 4B, 5 7A] including a first light source, a second light source, an objective lens, a photodetector, and a diffraction element comprising:

a first light source [fig. 5, unit 31A] for emitting a first light beam having a first wavelength [650 nm] [col. 10, lines 12-22 and col. 11, lines 25-31 and fig. 5];

a second light source [fig. 5, unit 31B] for emitting a second light beam having a second wavelength [780 nm] different from the first wavelength [col. 10, lines 12-22 and col. 11, lines 25-31 and fig. 5];

an objective lens [fig. 1-2, unit 17] for focusing said first light beam or said second light beam to the signal recording surface of an optical recording medium [fig. 1, units 18 and 19] of a first type matching to the first wavelength or that of an optical recording medium of a second type matching to the second wavelength, whichever appropriate [col. 8, lines 38-47];

a photodetector [fig. 3B, unit 35] for detecting the light beam focused on the signal recording surface of the optical recording medium of the first type or that of the optical recording medium of the second type, whichever appropriate, by the objective lens and reflected by the signal recording surface [col. 8, lines 56-63]; and

a diffraction element [fig. 3B, unit 33] arranged in the light path from the light sources to the photodetector by way of one of the first or second type of optical recording medium, the diffraction element having a first diffraction angle [angle determined by equation (1), first wavelength λ determines the first angle [col. 9, line 51] and a second diffraction angle [second wavelength λ determines the second angle [col. 9, line 51], wherein a difference between the first diffraction angle and the second diffraction angle is predetermined to offset a distance separating the first light source and the second light source [position relation] [col. 9, line 35 to col. 10, line 22]; and

at least one of the first light beam adapted to be used for reading information signals from the signal recording surface of the optical recording medium of the first type and reflected by the reflecting surface or the second light beam adapted to be used for reading information signals from the signal recording surface of the optical recording medium of the second type and reflected by the reflecting surface being diffracted by the diffraction element, the first reflected light beam and the second reflected light beam being focused to a same spot on the light receiving surface of the photodetector [col. 1, lines 17-30 and col. 12, line 56 to col. 13, line 4],

wherein the first diffraction angle diffracts the first reflected light beam and the second diffraction angle diffracts the second reflected light beam so that the first reflected light beam and the second reflected light beam being focused to a same spot [same position] [col. 10, lines 12-22] on the light receiving surface of the photodetector [col. 9, line 35 to col. 10, line 22].

Uchizaki discloses all of the above elements including a diffraction element [fig. 3B, unit 33] having opposite surfaces. Uchizaki does not specifically disclose that diffraction grating pattern can also be placed on the lower surface rather than on the upper surface to the extent claimed. Uchizaki teaches that grating pattern happens to

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be on the top surface. The above limitation in claim 1 does not define a patentable distinct invention over that in Uchizaki since both the invention as a whole and application are directed to an optical pickup having a diffraction device with first and second diffraction angle. The side on which the diffraction grating is placed presents no new or unexpected results, so long as the light is diffracted in a successful way. If one has more room on the top one places grating pattern on the top and one has less room on the top the grating is placed at the bottom of the grating device. Also placing gratings on the bottom surface is well known in the art for a long time [see US patent 5,959,704 etc.]. Therefore, to have grating pattern on lower surface would have been routine experimentation and optimization in the absence of criticality.

It should also be pointed out that shifting location of the parts in the system is well known in the art. It would have been obvious to a person of ordinary skill at the time of the invention to have rearranged grating pattern in the system of Uchizaki because doing so would make the system more flexible with respect to placement of the diffraction element close to upper surface or lower surface of the next device. As shown in "In re Japikse **86 USPQ 70 (CCPA 1950)**" these adjustments such as to shift location of parts generally not given patentable weight or would have been obvious improvements.

4. As to claim 2, it is rejected for same reasons as set forth in the rejection of claim 1, supra.

5. As to claim 9, it is rejected for similar reasons as set forth in the rejection of claim 1, supra. As to added limitations of:

rotary operating mechanism [motor] for driving one or more than one optical disc operating so many pieces of optical recording medium as to rotate [motors for driving discs are inherently present in these kind of recording devices; and

an optical pickup device [fig. 1] arranged opposite to the signal recording surfaces of one or more than one optical discs driven to rotate by said rotary operating mechanism [motors are inherently placed on the opposite side of the optical head, so as not to interfere with recording and reading].

6. As to claim 10, it is rejected for same reasons as set forth in the rejection of claim 9, *supra*.
7. As to claims 17, 20, 23 and 26 Shimano discloses:
the diffraction element generates a pair of sub-beams from the first reflected light beam and the second reflected light beam, where applicable [fig. 3A and col. 9, line 35 to col. 10, line 11].
8. As to claims 18, 21, 24 and 27 Shimano discloses:
the diffraction element includes a diffraction grating pattern on one of the opposite side surfaces of a plate [fig. 3A and col. 9, line 35 to col. 10, line 11].
9. As to claim 29, it is rejected for same reasons as set forth in the rejection of claim 9, *supra*.
10. Claims 19, 22, 25 and 28 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Uchizaki as applied to claims 1, 2, 9 and 10 above, and further in view of Oohchida, US. patent 6,584,060 (hereafter Oohchida).

Uchizaki discloses all of the above elements, including diffraction grating element [fig. 3A, unit 33]. Uchizaki does not specifically disclose type of grating design being used in his system i.e. if his diffraction grating can be of blazed type to the extent claimed.

However, blazed type diffraction gratings have been well known in the art for a long time for improving the diffraction efficiency. Also Oohchida clearly discloses: A diffraction grating pattern that is a blazed grating design [col. 18, lines 43-53 and col. 21, line 61 line 22, line 2].

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Both Uchizaki and Oohchida are interested in improving the diffraction grating pattern in an optical disk device for recording and reading information.

One of ordinary skill in the art at the time of invention would have realized that it would be desirable to improve the signal to noise ratio as an important parameter in any system and improvement this ratio is a desired feature to have.

Therefore, it would have been obvious to have used a blazed grating design in the system of Uchizaki as taught by Oohchida because one would be motivated to increase the diffraction efficiency and improve signal to noise [S/N] ratio in the system of Uchizaki and provide better signal controls, improve reliability and achieve excellent signal detection [col. 18, lines 42-54 and col. 21, line 61 to col. 22, line 2; Oohchida].

11. Applicant's arguments with respect to claims 1-2, 9-10 and 17-29 have been considered but are moot in view of the new grounds of rejection.

Other prior art cited

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Takeuchi et al. (US. Patent 5,497,227) "System for determining".
- b. Suzuki et al. (US. Patent 5,959,704) "Display device".
- c. Ohnishi et al. (US. patent 5,555,334) "Optical transmission"

13. Applicant's amendment necessitated the new grounds of rejection presented in this office action. Accordingly, **THIS ACTION IS MADE FINAL**. See M.P.E.P. § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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Contact Information

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gautam R. Patel whose telephone number is 571-272-7625. The examiner can normally be reached on Monday through Thursday from 7:30 to 6.

The appropriate fax number for the organization (Group 2650) where this application or proceeding is assigned is 703-872-9306.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. David Ometz can be reached on (571) 272-7593.

Any inquiry of a general nature or relating to the status of this application should be directed to the Electronic Business Center whose telephone number is 866-217-9197 or the USPTO contact Center telephone number is (800) PTO-9199.



**GAUTAM R. PATEL
PRIMARY EXAMINER**

Gautam R. Patel
Primary Examiner
Group Art Unit 2655

April 28, 2005